



UCLA DARK MATTER 2010 AGENDA

Sources and Detection of Dark Matter and Dark Energy in the Universe
Marina del Rey Marriott, February 24-26, 2010, Bayview Room

Wednesday, February 24, 2010

8:00am – 10:00am **Registration**

Overview talks

Chair: David B. Cline

- 10:00am Successes of and challenges to the "double dark" (dark matter and dark energy)/Lambda cold dark matter theory – Joel Primack (UC Santa Cruz)
- 10:30am Looking backward darkly: a history of dark matter – Virginia Trimble (UC Irvine)
- 11:00am Precision cosmology and the road ahead – Max Tegmark (MIT)
- 11:30am The search for dark matter with Fermi: a progress report – Elliott Bloom (Stanford Univ.)
- 12:00 noon Recent PAMELA results – Mirko Boezio (INFN – Sezione di Trieste) for the PAMELA Collaboration
- 12:30-1:30pm **Lunch**

Precision cosmology and status of search for DM

Chair: David B. Cline

- 1:30pm Overview of dark matter searches - Katherine Freese (Univ. of Michigan)
- 2:00pm Dark Matter: prospects for direct and indirect detection – Leszek Roszkowski (Univ. of Sheffield)
- 2:30pm Positron/electron measurements and interpretation for indirect dark matter – Gregory Tarlé (Univ. of Michigan)
- 3:00pm \mathcal{F} -ast proton decay, dark matter and LHC – Dimitri Nanopoulos (Texas A&M Univ.)
- 3:30pm **Break**

Latest results in dark energy measurement

Chair: Mark Morris

- 4:00pm Status and prospects for the Dark Energy Survey (DES)– John Peoples (FNAL)
4:30pm Results from the SDSS-II Supernova Survey – Richard Kessler (Univ. of Chicago)

Future detectors of dark energy

Chair: Mark Morris

- 4:50pm Theoretical status of dark energy – Kim Griest (UC San Diego)
5:20pm Wide-field Infrared Survey Explorer (WISE) – Ned Wright (UCLA)
5:45pm **Reception**

Thursday, February 25, 2010

Theories of dark energy and dark matter

Chair: Graciela Gelmini

- 8:00am Implications of assuming the PAMELA data is evidence for dark matter annihilation – Gordon Kane (Univ. of Michigan)
8:20am Dark matter interpretation of recent PAMELA and FERMI data – Lars Bergström (Stockholm Univ.)
8:40am Signals of inelastic and exciting dark matter – Neil Weiner (New York University)
9:00am Dark quantum states of gravitational wells – Allan D. Ernest and Matthew P. Collins (Charles Sturt University, Australia)
9:20am Connecting an annihilation signal in the sun to theory – Chris Savage (Stockholm Univ./OKC)
9:40am A study of dark matter in the minimal supersymmetric extension of the standard model (MSSM) – Randel Cotta (Stanford/SLAC)
10:00 **Break**

Indirect searches for dark matter

Chair: Rene Ong

- 10:35am Gamma ray searches for dark matter – Dan Hooper (FNAL)
10:55am Interesting trees in the WIMP forest – Tim M.P. Tait (UC Irvine)
11:15am Dark matter and pulsar signals for PAMELA, Fermi and ACTs – Danny Marfatia (Univ. of Kansas)
11:35am Search for axions using CDMS detectors – Jonghee Yoo (Fermilab)

- 11:55pm Indirect Dark Matter Searches in the light of FERMI, EGRET, INTEGRAL and PAMELA – Wim de Boer (KIT, Karlsruhe, Germany)
- 12:15pm Search for a narrow dilepton resonance in $e^+e^- \rightarrow W^+W^- \rightarrow 4\text{-leptons}$ – Mathew Graham (SLAC) for the BaBar Collaboration
- 12:35pm Indirect dark matter detection with Segue 1 – Neelima Sehgal (KIPAC/SLAC)
- 12:55pm New Fixed-Target Experiments to Search for GeV-scale Dark Gauge Forces – Rouven Essig (SLAC)
- 1:10pm **Lunch**

Warm dark matter: possible sterile neutrinos

Chair: Joel Primack

- 2:10pm Properties of dark matter on small spatial scales – Rosemary Wyse (Johns Hopkins Univ.)
- 2:30pm Constraints on primordial relic neutrinos, both active and sterile – George Fuller (UC San Diego)
- 2:50pm Sterile neutrinos as dark matter – Alexander Kusenko (UCLA)
- 3:10pm Dark matter search using X-ray astronomy, and a spectral feature consistent with a decay line of a 5 keV sterile neutrino in the Chandra spectrum of Willman 1 – Michael Loewenstein (Univ. of Maryland/NASA-GSFC)
- 3:30pm **Break**

New gamma ray searches, dark stars, other searches for dark matter

Chair: David O. Caldwell

- 3:45pm Muon flux from annihilation of dark matter in the core of the sun – Ina Sarcevic (Univ. of Arizona)
- 4:05pm Dark matter identified as intermediate-mass black holes (IMBHs) – Paul Frampton (UNC – Chapel Hill)
- 4:25pm Searching for axion dark matter with the ADMX experiment – Gianpaolo Carosi (LLNL)
- 4:45pm Determining WIMP properties at direct detection experiments – Louis Strigari (Stanford)
- 5:05pm Determination of the local dark matter density in our galaxy – Markus Weber (Univ. of Karlsruhe)
- 5:25 pm Is dark matter supersymmetric? – Csaba Balazs (Monash Univ., Australia)
- 5:45pm Indirect Dark Matter Searches with MAGIC - Daniel Nieto Castaño (Universidad Complutense de Madrid) on behalf of the MAGIC collaboration
- 6:05pm A new class of biological detectors for WIMPs – Andrew Drukier (George Mason Univ.)

Brief discussion on evidence for dark stars

Chair: Katherine Freese

- 6:25pm Dark stars – Paolo Gondolo (Univ. of Utah)
6:45pm Supermassive Dark Stars: Detectable in JWST – Cosmin Ilie (Univ. of Michigan)
7:05pm Discussion
7:30pm **Banquet**

Friday, February 26, 2010

Latest results from direct dark matter search (I) experiment

Chair: Hanguo Wang

- 8:00am The ArDM experiment: a double phase liquid Argon calorimeter/TPC for direct detection of dark matter – Lukas Epprecht (CERN)
8:20am Progress of the CRESST II experiment – Leo Stodolsky (Max Plank Institute)
8:40am The ZEPLIN-III dark matter search – Tim Sumner (Imperial College, London)
9:00am CDMS updates – Jeter Hall (Fermilab)
9:20am ZEPLIN-III limits on inelastic dark matter – Alastair Currie (Imperial College, London)
9:40am The XENON100 dark matter search - Guillaume Plante (Columbia Univ.)
10:00am First EDELWEISS-II results – Jules Gascon (Université Lyon) for the EDELWEISS Collaboration
10:20am **Break**

Latest results from direct dark matter search (II)

Chair: Blas Cabrera (tentative)

- 10:35am Dark side – Cristiano Galbiati (Princeton Univ.)
10:55am The MiniCLEAN dark matter experiment – Andrew Hime (LANL)
11:15am Spin dependent limits on WIMP-proton scattering crosssection from PICASSO – Sujeewa Kumaratunga (Université de Montréal)
11:35am Response of the XENON100 detector to gamma and neutron radioactive sources – Emilija Pantic (UCLA)
11:50pm Background studies for the XENON100 dark matter search experiment – Alexander Kish (Univ. of Zurich)
12:05pm COUPP – C. Eric Dahl (Univ. of Chicago)
12:35pm Progress towards direct detection of weakly interacting dark matter in South Dakota by the Large Underground Xenon (LUX) Collaboration – Adam Bernstein (LLNL)
12:55pm Lunch

New concepts for dark matter detection

Chair: Katherine Freese

- 1:45 XENON1T: a ton scale LXe dark matter experiment – Elena Aprile (Columbia Univ.)
- 2:05pm DARWIN: dark matter WIMP search with noble liquids – Laura Baudis (Univ. of Zurich)
- 2:25pm SuperCDMS and GEODM - Paul Brink (Stanford Univ.)
- 2:45pm MAX (Multi-ton Argon and Xenon TPCs) – Katsushi Arisaka (UCLA)
- 3:05pm Progress and Results from DRIFT – Dinesh Loomba (Univ. of New Mexico)
- 3:30pm **Break**
- 3:45pm Low threshold dark matter search using fully depleted charge coupled devices – Juan Estrada (Fermilab)
- 4:05pm DMTCP: a direction-sensitive dark matter search – James Battat (MIT) for the DMTCP Collaboration
- 4:25pm Solid Xenon project at Fermilab – Jonghee Yoo (Fermilab)
- 4:45pm High-pressure xenon-gas TPC for neutrino-less double beta decay search - what's NEXT – David Nygren (LBNL)
- 5:05pm High pressure gas dark matter detectors – James T. White (Texas A&M Univ.)
- 5:25pm Dark matter searches using P-type point contact germanium detectors – Juan Collar (Univ. of Chicago)
- 5:45pm The LZ program – Harry Nelson (UC Santa Barbara)

New labs (DUSEL, etc.), labs in Europe (SNOLAB, etc.)

Chair: Leszek Roszkowski (tentative)

- 6:05pm SNOLAB – Nigel J. T. Smith (SNOLAB International Underground Science Facility)
- 6:25pm Recent developments in dark matter experiments and underground lab in China – Xiangdong Ji (Univ. of Maryland/ Shanghai Jiao Tong Univ.)
- 6:45pm DUSEL and dark matter – Bernard Sadoulet (UC Berkeley)
- 7:05pm In Memoriam: Andrew E. Lange

Adjourn